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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,703	10/07/2003	Joseph Morelli	2098USU1	2633

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ECOLAB USA INC.
MAIL STOP ESC-F7, 655 LONE OAK DRIVE
EAGAN, MN 55121

EXAMINER	
THAKOR, DEVANG K	
ART UNIT	PAPER NUMBER
1619	
NOTIFICATION DATE	DELIVERY MODE
10/14/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

susanna.li@ecolab.com
angela.watson@ecolab.com

Office Action Summary	**Application No.** 10/680,703	**Applicant(s)** MORELLI ET AL.
	Examiner DEVANG THAKOR	**Art Unit** 1619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 September 2011*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-4,7-16,18-28,33 and 36-49* is/are pending in the application.
5a) Of the above claim(s) *20-22 and 38-48* is/are withdrawn from consideration.
6)☐ Claim(s) _____ is/are allowed.
7)☒ Claim(s) *1-4, 7-16, 18, 19, 23-28, 33, 36, 37, and 49* is/are rejected.
8)☐ Claim(s) _____ is/are objected to.
9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.
11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-4, 7-16, 18-28, 33, and 36-49 are pending.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 9/13/2011 has been entered.

Status of Claims

Claims 20-22 and 38-48 were withdrawn in the amendment filed 9/13/2011.

Claims 5, 6, 17, 29-32, 34, and 35 were cancelled in the amendment filed 9/13/2011.

Claims 1-4, 7-9, and 23-28 were amended in the amendment filed 9/13/2011.

Claim 49 was added in the amendment filed 9/13/2011.

Therefore, Claims 1-4, 7-16, 18, 19, 23-28, 33, 36, 37, and 49 have been examined on the merits.

Withdrawn Rejections

The rejection of Claims 1-16, 18, 19, 23-28, and 31-37 under 35 USC 112, first paragraph, is withdrawn in view of (1) Applicant's cancellation of Claims 5, 6, 31, 32, 34, and 35 in the amendment filed 9/13/2011 and (2) the decision of the Board of Patent Appeals and Inferences on 7/5/2011.

The rejection of claims 1-6, 10-13, 18, 19, 26-28, 31-34, and 37 under 35 USC 103 over Roozdar and Morelli et al. is withdrawn in light of Applicant's amendment of the claims.

The rejection of Claims 1-6, 10-13, 31-35, and 37 under 35 USC 103 over Pastore and Morelli et al. is withdrawn in light of Applicant's amendment of the claims.

The rejection of Claims 1-6, 18, 19, 23-28, and 31-37 under 35 USC 103 over Richter et al. is withdrawn in light of Applicant's amendment of the claims.

New Rejections

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 recites the limitation "”wherein the system minimizes the production of chlorine dioxide formation as compared to if the nitrogenous stabilizer were absent". There is insufficient antecedent basis for this limitation in

the claim because the nitrogenous stabilizer is not previously referred to (“nitrogenous stabilizer” was removed in the amendment of 9/13/2011). Because "nitrogenous stabilizer" was amended to "salt of sulfamic acid” in Claim 7, “nitrogenous stabilizer” in Claim 1 is interpreted to mean “salt of sulfamic acid.”

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a

later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-4, 7-16, 18, 19, 23-28, 33, 36, 37, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roozdar (US 5380518, 6/10/1995) in view of Morelli et al. (US 6524624, 2/25/2003,filing date 5/16/2001).

The same references applied for the 35 USC 103 rejection of Claims 1-6, 10-13, 18, 19, 26-28, 31-34, and 37 in the office action of 10/9/2009 are applied here; however, the rejection has been recast to meet the limitations of the amended claim.

Regarding Claim 1, Roozdar teaches an aqueous acidic disinfecting system comprising an alkaline aqueous chlorite and a biologically compatible acid (column 9, lines 50-68; column 10, lines 1-41). The biologically compatible acid is taught to be a salt of sulfamic acid (column 9, lines 9-12). Roozdar teaches that for applications to metal where corrosion is a concern, it is useful to generate chlorine dioxide in the composition (column 1, lines 21-30). However, the generation of chlorine dioxide is not integral to the invention of Roozdar because (1) it is taught as a related but separate embodiment from the disinfecting solution itself (column 1, lines 21-30) and (2) the addition of the disproportionation agent that generates the chlorine dioxide is taught to be optional (column 10, lines 7-11). Without the addition of this agent, the production of chlorine dioxide is inhibited (column 10, line 40). Roozdar does not teach the inclusion of an oxidizable colorant. Roozdar teaches that the overall pH range is from >2.0 to about 5.0, preferably from about 2.0 to about 4.5 (column 6, lines 33-35).

Morelli et al. teach that it is useful to use an oxidizable colorant in a two-part aqueous acid disinfecting system (column 1, lines 50-53; column 2, line 23) and that such an oxidizable colorant is degraded by chlorine dioxide generated in the disinfectant (column 3, lines 40-43). Morelli et al. also teach that chlorine dioxide is a gas that escapes into the air from the disinfectant solution (column 3, lines 45-50). The oxidizable colorant of Morelli et al. is soluble in an aqueous solution (Examples 6 and 7).

It would have therefore been obvious to one of ordinary skill in the art at the time of invention to include an oxidizable colorant as taught by Morelli et al. in a composition of Roozdar that is not intended for use on metallic surfaces and therefore does not require chlorine dioxide. One of ordinary skill in the art at the time of invention would have been motivated to exclude the disproportionation agent from the composition of Roozdar to decrease the formation of chloride dioxide and thereby prevent the degradation of the colorant. Furthermore, one of ordinary skill in the art at the time of invention would have been motivated to first combine the chlorite solution and sulfamic acid solution of Roozdar, i.e., generate the disinfecting composition of Roozdar, and then let this mixture sit to allow the formed chloride dioxide gas to evaporate prior to the addition of the oxidizable colorant solution of Morelli et al., thereby reducing the amount of chloride dioxide present and inhibiting the degradation of the colorant. Therefore, this composition contains two parts: (1) the premixed solution containing chlorite and a salt of sulfamic acid (e.g., the “chlorite part” and “acid part” of the composition in Example 1 of Roozdar) and (2) the solution containing the colorant (e.g., "Part 2" in Example 1 of Morelli et al.). The composition does not contain nonoxidizable colorants.

Because Roozdar teaches that the disinfecting composition should have a pH of less than 5, it would have been obvious to one of ordinary skill in the art at the time of invention to include an aqueous acid in the solution containing the colorant to maintain the acidic pH of the final composition obtained when the premixed acid disinfectant is diluted with the solution containing the colorant; if no acid was present in the solution containing the colorant, the pH would increase when the solution containing the colorant is added to the solution containing chlorite and a salt of sulfamic acid because the acid would be diluted. The colorant-containing solution of Morelli et al., which one of ordinary skill in the art would have combined with the "chlorite part" and the "acid part" of the disinfecting solution of Roozdar, already contains an aqueous acid (“Part 2” in Example 1 of Morelli et al.).

Regarding Claims 2-4, sulfamic acid has a Reduced Chlorite Demand Factor of 4.5 as demonstrated by applicant in the instant specification (Table 10); thus, a Reduced Chorite Demand Factor of 4 or greater is a necessary property of sulfamic acid. A salt of sulfamic acid would be reasonably expected to have the same Reduced Chlorite Demand Factor because the amine group of the sulfamic acid, and not the salt, in the salt of sulfamic acid would influence the Reduced Chorite Demand Factor.

With regard to Claims 7-9, the acid in the composition of Roozdar and Morelli et al. is present at a concentration of 0.01M to >1M (Roozdar, column 8, line 19). The molecular weight of sulfamic acid is 79.1 g/mol; therefore the concentration of 0.01M to >1M is 0.0791% to >7.91%. A salt of sulfamic acid would have a higher molecular weight and thus have a higher weight percentage for the same concentration. For example, the sodium salt of sulfamic acid has a molecular weight of 119.076; therefore the concentration of 0.01M to >1M is 0.119076% to >11.9076%.

With regard to Claims 10-13, the chlorite is sodium chlorite (Roozdar, column 9, lines 52-53 and line 56).

With regard to Claims 14-16, the chlorite is present at about 0.09 g to about 45 g per liter (Roozdar, column 9, line 56), i.e., about 0.009% to 4.5%.

With regard to Claims 18 and 19, the aqueous acid present in the colorant-containing solution is lactic acid (Morelli et al., Example 1).

With regard to Claims 23-25, the lactic acid in the second part, i.e., the colorant-containing solution, is present at 2.64% (Morelli et al., Example 1). Because the colorant-containing solution is taught to be combined with the chlorite-containing solution at a ratio of 1:1 (Morelli et al., Example 1), the final concentration of the lactic acid after mixing the colorant-containing solution of Morelli et al. with the chlorite-containing total disinfecting solution of Roozdar (i.e., the premix of Roozdar's chlorite-containing and sulfamic-acid-containing solutions) would be 1.32%.

With regard to Claims 26-28, the overall pH range is from >2.0 to about 5.0, preferably from about 2.0 to about 4.5 (Roozdar, column 36, lines 33-35).

With regard to Claim 33, Morelli et al. teach that in a two-part disinfecting system where one part contains the alkaline aqueous chlorite and the second part contains the oxidizable colorant, the two parts are combined in equal volumes (Example 1). It would therefore have been obvious of ordinary skill in the art at the time of invention to use equal volumes of the two parts of the composition of Roozdar and Morelli et al.

With regard to Claim 36, Morelli et al. teach that it is useful to include a wetting agent, textural modifier, film-forming polymer, or surfactant in an aqueous disinfecting system (column 6, lines 56-60). It would have therefore been obvious to one of ordinary skill in the art at the time of invention to include a wetting agent, textural modifier, film-forming polymer, or surfactant in the aqueous disinfecting system of Roozdar and Morelli et al.

With regard to Claim 37, as recited in the rejection of Claim 1 *supra*, the two parts of the composition are combined to form a disinfecting composition; therefore, the disinfecting composition is rendered obvious.

With regard to Claim 49, the salt of sulfamic acid is sulfamic acid (Roozdar, column 3, line 40).

6. Claims 1-4, 7-16, 18, 19, 23-28, 33, 36, 37, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richter (US 6379685, 4/30/2002; filing date 9/24/1998) in view of Morelli et al. (US 6524624, 2/25/2003,filing date 5/16/2001) and Kolar and Lindgren (Acta Chemica Scandinavica B 36, 1982, pages 599-605).

Regarding Claim 1, Richter teaches a two-part aqueous acidic disinfecting system where the first part comprises an alkaline aqueous chlorite (i.e., sodium chlorite), and the second part comprises an aqueous acid (i.e., lactic acid) and an oxidizable colorant (i.e., F, D & C Green #3) (Example 3). The composition of Richter does not contain nonoxidizable colorants. Morelli et al. teach that oxidizable colorants are degraded by chlorine dioxide generated upon the mixing of the acid activator with the chlorite in a two-part disinfectant (column 3, lines 40-43). Kolar and Lindgren teach that the addition of sulfamic acid to the reaction prevents the formation of chlorine dioxide from chlorite (Figure 4).

It would have therefore been obvious to one of ordinary skill in the art at the time of invention to include sulfamic acid in the chlorite-containing solution in the composition of Richter to prevent the formation of chloride dioxide from the chlorite as taught by Kolar and Lindgren, thereby preventing the degradation of the colorant as taught by Morelli et al. The use of sulfamic acid in the composition is considered to render the use of a salt of sulfamic acid obvious because it is the sulfamic acid, and not the salt, that has the chlorine-dioxide-reducing effect.

Regarding Claims 2-4, sulfamic acid has a Reduced Chlorite Demand Factor of 4.5 as demonstrated by applicant in the instant specification (Table 10); thus, a Reduced Chorite Demand Factor of 4 or greater is a necessary property of sulfamic acid. A salt of sulfamic acid would be reasonably expected to have the same Reduced Chlorite Demand Factor because the amine group of the sulfamic acid, and not the salt, in the salt of sulfamic acid would influence the Reduced Chorite Demand Factor.

With regard to Claims 7-9, Kola and Lindgren show that sulfamic acid reduces the production of chlorine dioxide from chlorite at a concentration of 8.2 mM. The molecular weight of sulfamic acid is 79.1 g/mol; therefore the concentration of 8.2 mM is 0.065%. A salt of sulfamic acid would have a higher molecular weight and thus have a higher weight percentage for the same concentration. For example, the sodium salt of sulfamic acid has a molecular weight of 119.076; therefore the concentration of 8.2 mM is 0.0976%. The concentrations of 0.065% and 0.0976% are considered to render 0.1% in the instant claim obvious.

With regard to Claims 10-13, the chlorite is sodium chlorite (Richter, Example 3).

With regard to Claims 14-16, the chlorite is present in the first part of the composition as a 25% solution that comprises 50% of the composition, i.e., the chlorite comprises 12.5% of the solution Richter, Example 3). The chlorite-containing solution is mixed with the colorant-containing solution at a ratio of

1:36.36. Therefore, the chlorite is present in the overall composition at a concentration of 0.33%.

With regard to Claims 18 and 19, the aqueous acid present in the colorant-containing solution is lactic acid (Richter et al., Example 3).

With regard to Claims 23-25, the lactic acid in the second part, i.e., the colorant-containing solution, is present as an 88% solution that comprises 2.95% of the colorant-containing solution, i.e., the lactic acid comprises 2.6% of the colorant-containing solution (Richter et al. Example 3). The chlorite-containing solution is mixed with the colorant-containing solution at a ratio of 1:36.36. Therefore, the lactic acid is present in the overall composition at a concentration of 2.53%.

With regard to Claims 26-28, the pH of the composition is about 2.9 (Richter et al. Example 3).

With regard to Claim 33, Richter et al. does not teach the adaptation of the first and second part to be combined in equal volumes; the chlorite-containing solution has a much smaller volume than the colorant-containing solution. However, Morelli et el., who provided the motivation to decrease the generation of chlorine dioxide as recited *supra*, teach that it is preferable the mix the first and second parts after the parts are diluted with water to avoid excessive generation of chlorine dioxide that may occur upon the combination of concentrated forms (column 3, lines 63-67). Morelli et al. also teach the use of equal volumes for the chlorite-containing solution and the colorant-containing solution (Example 1).

It would have therefore been obvious to one of ordinary skill in the art of invention to dilute the chlorite-containing solution in the composition of Richter et al., Morelli et al., and Kola and Lindgren such that the volume of the chlorite-containing solution and that of the colorant-containing solution were equal as taught by Morelli et al. to prevent the generation of chlorine dioxide as taught by Morelli et al.

With regard to Claim 36, the composition contains surfactants (Richter et al., columns 14, 15, and 16) and thickening agents (column 11).

With regard to Claim 37, as recited in the rejection of Claim 1 *supra*, the two parts of the composition are combined to form a disinfecting composition; therefore, the disinfecting composition is rendered obvious.

With regard to Claim 49, sulfamic acid is used (Kolar and Lindgren, Figure 4).

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVANG THAKOR, PH.D. whose telephone number is 571-270-5972. The examiner can normally be reached on Monday through Friday, 9:00 AM to 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Blanchard can be reached on 571-272-0827. The fax phone number for the organization where this application or proceeding is assigned is 571-274-5972.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DEVANG THAKOR/

Examiner, Art Unit 1619

/Joanne Hama/
Primary Examiner, Art Unit 1632